REMARKS

In the Office Action, the Examiner rejected claims 1-27 under 35 USC §102(e). This rejection is fully traversed below.

Claims 1, 2, 9, 11, 13, 16 and 19-22 have been amended to further clarify the subject matter regarded as the invention and/or correct minor informalities. In addition, claims 28 and 29 have been added to the application. Thus, claims 1-29 are currently pending in the application. Reconsideration of the application is respectfully requested based on the following remarks.

REJECTION OF CLAIMS 1-27 UNDER 35 USC §102(e)

In the Office Action, the Examiner rejected claims 1-27 under 35 USC §102(e) as being anticipated by Brotman et al. (U.S. Patent No. 5,917,889). This rejection is fully traversed below.

The invention relates to an improved approach for resolving overloaded keys (i.e., ambiguous keys) in constrained computing devices. The invention utilizes a combination of ambiguous key entry and a corresponding voice input to particularly identify an entered key. The invention being claimed is distinguished from Brotman et al. below.

Claim 1 pertains to a method for inputting data to a mobile communication device. The mobile communication device has a constrained keyboard with ambiguous keys and a microphone for picking up voice input. Among other things, claim 1 recites:

> (a) receiving voice input from a user using the microphone;
> (b) detecting, substantially concurrently with said receiving (a), that one of the ambiguous keys of the keyboard has been selected by the user as a selected key;

Claim 1, lines 5-6.

In contrast, Brotman et al. fails to teach or suggest the detection of one of the ambiguous keys of the keyboard that is selected by the user substantially concurrently with the receiving of a voice input from the user. First, it should be noted that Brotman et al. pertains to an automated call processing environment that makes use of a telephone keypad which has ambiguous keys. However, as explained in Brotman et al., the caller enters a series of telephone keys corresponding to the alphabetic characters of a string to be captured, and then the caller utters each character of the string. (See

Brotman et al., col. 3, lines 41-57, and see Fig. 2). Thereafter, a string of selected alphabetic characters is formed and presented to the caller, who can then signal whether the generated character string is correct or incorrect. It is clear from Fig. 2 of Brotman et al. that the system at step 640 prompts the user to utter the string of alpha characters that have been depressed using telephone keys. Indeed, Brotman et al. states at col. 4, lines 4-10 that the particular advantages of the method are the processing of an entire character string together. Specifically, at col. 4, lines 4-10, Brotman et al. states:

> An advantage of this method is that the entire character string is processed together, so information in the string (i.e., its grammar) is available for use in disambiguation.
>
> Another advantage of this method is that it seems faster to the caller than character-by-character capture, since some of the interaction overhead is amortized over the entire string, rather than being incurred for each character.

Accordingly, Brotman et al. fails to teach or suggest that each character would be processed separately such that as an ambiguous key is selected (entered) by the user, a voice input provided by the user would be substantially concurrently received, whereby processing is performed in a character-by-character basis. Therefore, it is submitted that claim 1 is patentably distinct from Brotman et al.

Claim 9 pertains to a computer readable medium having program code for disambiguating a key selection to a constrained input keyboard of a computing device. Among other things, claim 9 recites:

> program code for receiving a voice input corresponding to one of the characters associated with the selected key, the voice input being received substantially concurrently with the detection of the selected key;

Claim 9, lines 7-9.

For similar reasons as noted above with respect to claim 1, it is submitted that claim 9 is also patentably distinct from Brotman et al. given that Brotman et al. not only fails to teach or suggest receiving a voice input substantially concurrently with the detection of a selected key, but also teaches away from such character-by-character processing. Therefore, it is submitted that claim 9 is patentably distinct from Brotman et al.

Claim 17 pertains to a key disambiguate system for an ambiguous key input device. The improvement recited in claim 17 involves "completely disambiguating a

user's key input of a single action on a single one of the keys through use of a user's sound input pertaining to the intended character associated with the single one of the keys." Claim 17, lines 3-5. Here, the key disambiguate system again is processing single keys together with a user's sound input pertaining to the single one of the keys. Hence, for similar reasons to those noted above, it is submitted that Brotman et al. fails to teach or suggest the features of claim 17.

Claim 19 pertains to a key disambiguation system that, among other things, recites a key determination unit that "operates in response to the key selection event to determine the one of the characters being input based on the comparison data." Hence, the key determination unit determines the one of the characters being input. The key selection event is triggered by the user's selection of one of the keys of an ambiguous key input device, and the comparison data is produced by comparing a processed voice input with selected ones of reference source patterns in a pattern comparison unit. Hence, the key determination unit operates to identify the character being input on a character-by-character basis. Accordingly, for similar reasons to those noted above, it is submitted that claim 19 is patentably distinct from Brotman et al.

Claim 21 pertains to a mobile communication device having a constrained keyboard with ambiguous keys. Among other things, claim 21 recites "means for detecting, substantially concurrently with the receipt of the voice input via said microphone, one of the ambiguous keys of the keyboard that has been selected by the user as a selected key" (claim 21, lines 4-6). The functional operation recited in this element is similar to that discussed above with respect to claim 1. Hence, it is submitted that claim 21 is patentably distinct from Brotman et al. for at least similar reasons to those noted above with respect to claim 1.

Claim 22 pertains to a method for inputting data to a mobile communication device having a constrained keyboard with ambiguous keys and a microphone for picking up voice input. Claim 22, among other things, recites "receiving user inputs, the user inputs including a voice input from a user using the microphone and a key selection of at least one of the ambiguous keys of the keyboard, the voice input and the key selection being received substantially simultaneously." Claim 22, lines 4-7. As previously noted, Brotman et al. fails to teach or suggest the simultaneous receipt and/or processing of a voice input and a particular key selection to identify a single character being input by a user. In fact, Brotman et al. teaches against such

processing. Accordingly, it is submitted that claim 22 is patentably distinct from Brotman et al.

Based on the foregoing, it is submitted that claims 1, 9, 17, 19, 21 and 22 are patentably distinct from Brotman et al. In addition, it is submitted that dependent claims 2-8, 10-16, 18, 20 and 23-27 (as well as new claims 28 and 29) are also patentably distinct from Brotman et al. for at least the same reasons. The additional limitations recited in the independent claims or the dependent claims are not further discussed as the above-discussed limitations are clearly sufficient to distinguish the claimed invention from Brotman et al. Thus, it is respectfully requested that the Examiner withdraw the rejection of claims 1-27 under 35 USC §102(e).

SUMMARY

It is submitted that claims 1-29 are patentably distinct from Brotman et al. Reconsideration of the application and an early notice of allowance are earnestly solicited.

If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

Applicant hereby petition for an extension of time which may be required to maintain the pendency of this case, and any required fee for such extension or any further fee required in connection with the filing of this Amendment is to be charged to Deposit Account No. 500388 (Order No. UWP1P029).

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP

C. Douglass Thomas
Reg. No. 32,947

P.O. Box 778
Berkeley, CA 94704-0778
650-961-8300

MARKED UP VERSION INDICATING CHANGES MADE

1. (Once Amended) A method for inputting data to a mobile communication device having a constrained keyboard with ambiguous keys, the mobile communication device also having a microphone for picking up voice input, said method comprising:

(a) receiving voice input from a user using the microphone;

(b) detecting, substantially concurrently with said receiving (a), that [whether at least] one of the ambiguous keys of the keyboard has been selected by the user as a selected key;

(c) obtaining reference patterns associated with the selected key;

(d) comparing the voice input with the obtained reference patterns to produce comparison data; and

(e) identifying a character that was intended to be input by the user based on the comparison data.

2. (Once Amended) A method as recited in claim 1, wherein said obtaining (c), said comparing (d) and said identifying (e) are initiated [is synchronized] with the detection of the selected key by said detecting (b).

9. (Once Amended) A computer readable medium having program code for disambiguating a key selection to a constrained input keyboard of a computing device, the key selection being ambiguous as to which a plurality of characters is to be input, said computer readable medium comprising:

program code for detecting whether an ambiguous key[s] of the keyboard has been selected as a selected key;

program code for receiving a voice input corresponding to one of the characters associated with the selected key, the voice input being received substantially concurrently with the detection of the selected key; and

program code for determining the one of the characters [to] that has been input based on the selected key and the voice input.

11. (Once Amended) A computer readable medium as recited in claim 10, wherein the computing device is a [cellular] mobile telephone.

MARKED UP VERSION INDICATING CHANGES MADE

13. (Once Amended) A computer readable medium as recited in claim 12, wherein said program code for obtaining, said program code for comparing and said program code for identifying [is] are initiated [synchronized] with the detection of the selected key by said program code for detecting.

16. (Once Amended) A computer readable medium as recited in claim 15, wherein the computing device is a [cellular] mobile telephone.

19. (Once Amended) A key disambiguation system, comprising:

a microphone for picking up an analog voice input;

an analog-to-digital converter coupled to said microphone, said analog-to-digital microphone converts the analog voice input to a digital voice input;

a data reduction unit coupled to said analog-to-digital circuit, said data reduction unit identifies distinguishing characteristics within the digital voice input as processed voice input;

an ambiguous key input device having a plurality of keys, each of the keys representing a plurality of different characters;

a keyboard controller coupled to said ambiguous key input device, said keyboard controller detects a user's selection of one of the keys of said ambiguous key input device and invokes a key selection event;

a reference sound patterns source coupled to said keyboard controller, said reference sound patterns source stores a plurality of reference sounds;

a pattern comparison unit coupled to said data reduction unit and said reference sound patterns source, said pattern comparison unit operates to compare the processed voice input with selected ones of the reference sound patterns to produce comparison data; and

a key determination unit coupled to said pattern comparison unit, said key determination unit operates in response to the key selection event to determine the one of the characters being input based on the comparison data.

20. (Once Amended) A key disambiguation system as recited in claim 19, wherein said key determination unit identifies a matching one of the selected reference sound patterns, and determines the one of the characters being input from the matching [on] of the selected reference sound patterns.

21. (Once Amended) A mobile communication device having a constrained keyboard with ambiguous keys, said method comprising:

a microphone configured to receive voice input from a user;

means for detecting, substantially concurrently with the receipt of the voice input via said microphone, that [whether at least] one of the ambiguous keys of the keyboard has been selected by the user as a selected key;

means for obtaining reference patterns associated with the selected key;

means for comparing the voice input with the obtained reference patterns to produce comparison data; and

means for identifying a character that was intended to be input by the user based on the comparison data.

22. (Once Amended) A method for inputting data to a mobile communication device having a constrained keyboard with ambiguous keys, the mobile communication device also having a microphone for picking up voice input, said method comprising:

(a) receiving user inputs, the user inputs including a voice input from a user using the microphone and a key selection of at least one of the ambiguous keys of the keyboard, and the voice input and the key selection being received substantially simultaneously;

(b) obtaining reference patterns associated with the key selection;

(c) comparing the voice input with the obtained reference patterns to produce comparison data; and

(d) identifying a character that was intended to be input by the user based on the comparison data.